

Appl. No. 10/700,810
 Atty. Docket No. CM2707ML
 Amdt. Dated 01/19/2006
 Reply to Office Action of 10/19/2005
 Customer No. 27752

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

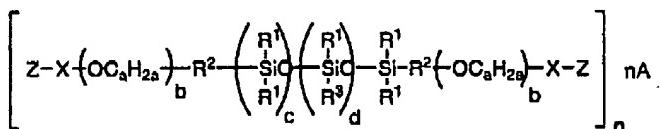
Listing of Claims:

1. (Currently Amended) A liquid laundry detergent composition comprising

- (a) at least one detergent ingredient selected from the group consisting of anionic surfactants, zwitterionic surfactants, amphoteric surfactants, and mixtures thereof;
- (b) a coacervate phase forming cationic polymer selected from cationic guar gums in an amount of from 0.05 to 0.2% by weight of the composition;
- (c) one or more fabric care ingredients selected from the group consisting of

(c1) one or more cationic silicone polymers comprising one or more polysiloxane units and one or more nitrogen moieties, wherein the cationic silicone polymer has a formula selected from;

(1)



wherein:

R^1 is independently selected from the group consisting of C_{1-22} alkyl, C_{2-22} alkenyl, C_{6-22} alkylaryl, aryl, cycloalkyl, and mixtures thereof;

R^2 is independently selected from the group consisting of divalent organic moieties;

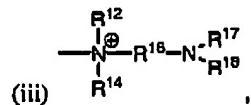
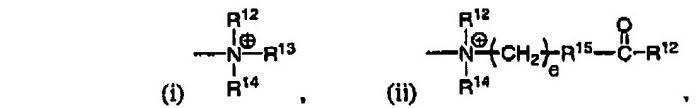
X is independently selected from the group consisting of ring-opened epoxides;

R^3 is independently selected from polyether groups having the formula:
 $--M^1(C_6H_{12}O)_b--M^2$

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wherein M¹ is a divalent hydrocarbon residue; M² is independently selected from the group consisting of H, C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl and mixtures thereof;

Z is independently selected from the group consisting of;



(iv) $\begin{array}{c} \text{O} \\ || \\ \text{N} \text{---} \text{C}(\text{R}^1)-\text{CH}_2-\text{C}-\text{O}-\text{R}^{12} \end{array}$, and (v) monovalent aromatic or aliphatic heterocyclic group, substituted or unsubstituted, containing at least one quaternized nitrogen atom;

wherein:

R¹², R¹³, and R¹⁴ are the same or different, and are selected from the group consisting of C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl polyalkyleneoxide (poly)alkoxy alkyl, and mixtures thereof; R¹⁵ is -O- or NR¹⁹;

R¹⁶ is a divalent hydrocarbon residue;

R¹⁷, R¹⁸, and R¹⁹ are the same or different, and are selected from the group consisting of H, C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl and mixtures thereof; and

e is from about 1 to about 6

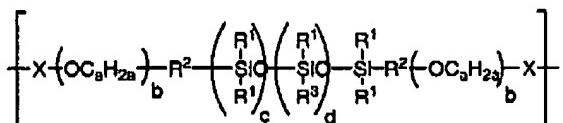
a is from about 2 to about 4; b is from 0 to about 100; c is from about 1 to about 1000; d is from 0 to about 100; n is the number of positive charges

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associated with the cationic silicone polymer, which is greater than or equal to about 2; and A is a monovalent anion;

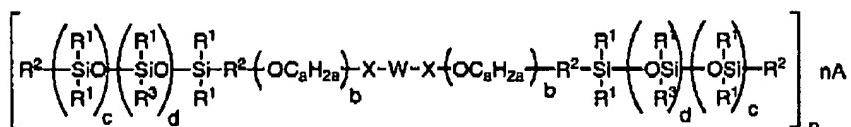
(2) alternating units of:

(i) a polysiloxane of the following formula:



(ii) a divalent organic moiety comprising at least two quaternized nitrogen atoms;

(3)



wherein:

W is independently selected from the group consisting of divalent organic moieties comprising at least one quaternized nitrogen atom;

n is the number of positive charges associated with the cationic silicone polymer, which is greater than or equal to about 1; and A is a counterion

(c3) one or more nitrogen-free silicone polymers, wherein the nitrogen-free silicone polymers, when present, have a viscosity of 100,000 to 480,000 centistokes at 20 °C; and

(c4) mixtures thereof; and

(d) a liquid carrier.

2. (Previously Amended) A liquid laundry detergent composition according to claim 1 comprising

(a) at least one detergent ingredient selected from the group consisting of anionic surfactants, zwitterionic surfactants, amphoteric surfactants, and mixtures thereof;

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- (b) a coacervate phase forming cationic polymer; and
- (c) one or more cationic silicone polymers comprising one or more polysiloxane units and one or more nitrogen moieties;
- (d) one or more fabric care ingredients selected from the group consisting of
 - (d2) one or more nitrogen-free silicone polymers; and
 - (d3) mixtures thereof;
- (e) a liquid carrier.

3. (Original) A liquid laundry detergent composition according to claim 1 further comprising at least one compound selected from the group consisting of

- (a) builders;
- (b) enzymes;
- (c) suds suppressor systems; and
- (d) mixtures thereof.

4. (Original) A liquid laundry detergent composition according to claim 2 further comprising at least one compound selected from the group consisting of

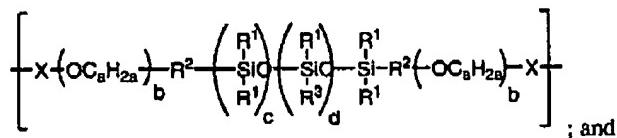
- (a) builders;
- (b) enzymes;
- (c) suds suppressor systems; and
- (d) mixtures thereof.

5-9. (Cancelled).

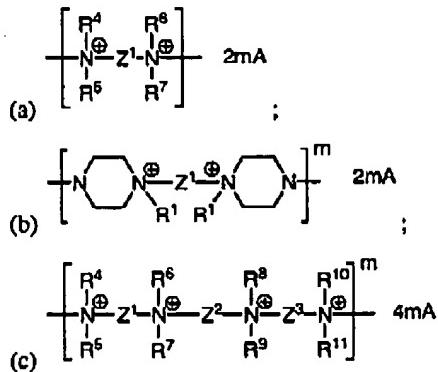
10. (Previously Amended) A liquid laundry detergent composition according to claim 1 wherein the cationic silicone polymer is composed of alternating units of:

- (i) a polysiloxane of the following formula:

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(ii) a cationic divalent organic moiety selected from the group consisting of:



(d) a divalent aromatic or aliphatic heterocyclic group, substituted or unsubstituted, containing at least one quaternized nitrogen atom; and mixtures thereof;

wherein R^1 is independently selected from the group consisting of C_{1-22} alkyl, C_{2-22} alkenyl, C_{6-22} alkylaryl, aryl, cycloalkyl, and mixtures thereof;

R^2 is independently selected from the group consisting of divalent organic moieties;

X is independently selected from the group consisting of ring-opened epoxides;

R^3 is independently selected from polyether groups having the formula:



wherein M^1 is a divalent hydrocarbon residue; M^2 is independently selected from the group consisting of H, C_{1-22} alkyl, C_{2-22} alkenyl, C_{6-22} alkylaryl, aryl, cycloalkyl, C_{1-22} hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl, and mixtures thereof;

$R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}$ are the same or different, and are selected from the group consisting of C_{1-22} alkyl, C_{2-22} alkenyl, C_{6-22} alkylaryl, aryl, cycloalkyl, C_{1-22} hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl, and mixtures thereof; or in

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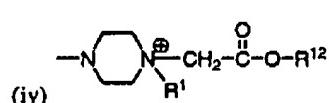
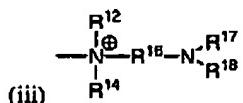
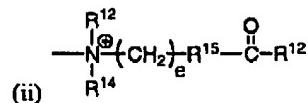
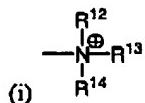
which R⁴ and R⁶, or R⁵ and R⁷, or R⁸ and R¹⁰, or R⁹ and R¹¹ are components of a bridging alkylene group; Z¹ and Z² are the same or different divalent hydrocarbon groups each comprising at least about 2 carbon atoms;
 a is from about 2 to about 4; b is from 0 to about 100; c is from about 1 to about 1000;
 d is from 0 to about 100;
 m is the number of positive charges associated with the cationic divalent organic moiety, which is greater than or equal to about 2; A is an anion; and
 wherein, expressed as fractions on the total moles of the organosilicone-free moieties, the cationic divalent organic moiety (ii) is present at of from about 0.05 to about 1.0 mole fraction.

11. (Previously Amended) A liquid laundry detergent composition according to claim 10 wherein the cationic silicone further comprises a polyalkyleneoxide amine of formula:



wherein Y is a divalent organic group comprising a secondary or tertiary amine; a is from about 2 to about 4; b is from 0 to about 100; and the polyalkyleneoxide amine is present of from 0.0 to about 0.95 mole fraction.

12. (Previously Amended) A fabric treatment composition according to claim 10 wherein the cationic silicone further comprises an end-group cationic monovalent organic moiety selected from the group consisting of:



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(v) monovalent aromatic or aliphatic heterocyclic group, substituted or unsubstituted, containing at least one quaternized nitrogen atom;
 wherein:

R^{12} , R^{13} , and R^{14} are the same or different, and are selected from the group consisting of C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl polyalkyleneoxide (poly)alkoxy alkyl, and mixtures thereof;

R^{15} is --O-- or NR¹⁹;

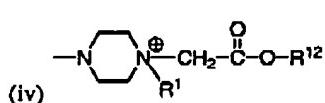
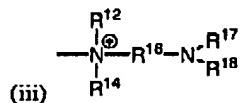
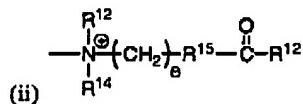
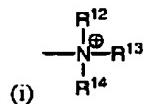
R^{16} is a divalent hydrocarbon residue;

R^{17} , R^{18} , and R^{19} are the same or different, and are selected from the group consisting of H, C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl and mixtures thereof; and

e is from about 1 to about 6; and the cationic monovalent organic moiety is present of from 0 to about 0.2 mole fraction.

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13. (Previously Amended) A liquid laundry detergent composition according to claim 11 wherein the cationic silicone further comprises an end-group cationic monovalent organic moiety selected from the group consisting of:



(v) monovalent aromatic or aliphatic heterocyclic group, substituted or unsubstituted, containing at least one quaternized nitrogen atom;

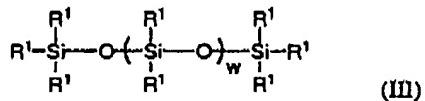
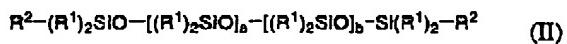
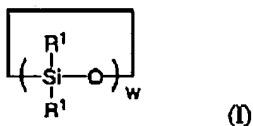
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R^{12} , R^{13} , and R^{14} are the same or different, and are selected from the group consisting of C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl polyalkyleneoxide (poly)alkoxy alkyl, and mixtures thereof;
 R^{15} is -O- or NR¹⁹;
 R^{16} is a divalent hydrocarbon residue;
 R^{17} , R^{18} , and R^{19} are the same or different, and are selected from the group consisting of H, C₁₋₂₂ alkyl, C₂₋₂₂ alkenyl, C₆₋₂₂ alkylaryl, aryl, cycloalkyl, C₁₋₂₂ hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl and mixtures thereof;
 and
 e is from about 1 to about 6; and the cationic monovalent organic moiety is present of from 0 to about 0.2 mole fraction.

14- 15 (Cancelled).

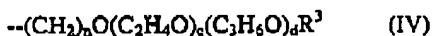
16. (Previously Amended) A liquid laundry detergent composition according claim 1 wherein the nitrogen-free silicone polymer is selected from the group consisting of nonionic nitrogen-free silicone polymers having a formulae selected from (I) to (III):



and mixtures thereof, wherein each R^1 is independently selected from the group consisting of linear, branched or cyclic alkyl groups having from about 1 to about 20 carbon atoms; linear, branched or cyclic alkenyl groups having from about 2 to about 20 carbon atoms; aryl groups having from about 6 to about 20 carbon atoms; alkylaryl groups having from about 7 to about 20 carbon atoms; arylalkyl and arylalkenyl groups having from about 7 to about 20 carbon

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atoms and mixtures thereof; each R² is independently selected from the group consisting of linear, branched or cyclic alkyl groups having from about 1 to about 20 carbon atoms; linear, branched or cyclic alkenyl groups having from about 2 to about 20 carbon atoms; aryl groups having from about 6 to about 20 carbon atoms; alkylaryl groups having from about 7 to about 20 carbon atoms; arylalkyl; arylalkenyl groups having from about 7 to about 20 carbon atoms and from a poly(ethyleneoxide/propyleneoxide) copolymer group having the general formula (IV):



wherein at least one R² is a poly(ethyleneoxy/propyleneoxy) copolymer group, and each R³ is independently selected from the group consisting of hydrogen, alkyl groups having from about 1 to about 4 carbon atoms, acetyl groups, and mixtures thereof, wherein the index w has the value as such that the viscosity of the nitrogen-free silicone polymer of formulae (I) and (III) is between about 100,000 centistokes at 20 °C and about 480,000 centistokes at 20 °C; wherein a is from about 1 to about 50; b is from about 1 to about 50; n is about 1 to about 50; total c (for all polyalkyleneoxy side groups) has a value of from about 1 to about 100; total d is from 0 to about 14; total c+d has a value of from about 5 to about 150.

17. (Original) A liquid laundry detergent composition according to claim 1 further comprising one or more laundry adjunct materials selected from the group consisting of stabilizers; coupling agents; fabric substantive perfumes; fabric softeners; chelating agents; effervescent systems; cationic surfactants; nonionic surfactants; and mixtures therof.

18. (Cancelled).

19. (Previously Amended) A liquid laundry detergent composition according to claim 1, wherein the coacervate phase forming cationic polymer is selected from the group consisting of cationic guar hydroxypropyltrim ammonium salts, and derivatives thereof.

20-26. (Cancelled)

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27. (New) A liquid laundry detergent composition comprising

- (a) at least one detergent ingredient selected from the group consisting of anionic surfactants, zwitterionic surfactants, amphoteric surfactants, and mixtures thereof;
- (b) a coacervate phase forming cationic polymer selected from guar gums in an amount of from 0.05% to 0.2% by weight of the composition;
- (c) one or more fabric care ingredients selected from linear cationic silicone block copolymers comprising non-fabric substantive loops and fabric substantive hooks; and
- (d) a liquid carrier.

28. (New) A liquid laundry detergent composition according to Claim 27 wherein said non-fabric substantive loops comprise polysiloxane units.

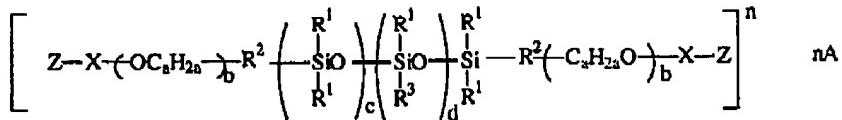
29. (New) A liquid laundry detergent composition according to Claim 27 wherein said fabric substantive hooks is free of silicone and each of said fabric substantive hook comprises at least two quaternary nitrogens.

30. (New) A liquid laundry detergent composition according to Claim 27, wherein the cationic silicone polymer comprises one or more polysiloxane units and one or more quaternary nitrogen moieties.

31. (New) A liquid laundry detergent composition according to Claim 27, wherein the cationic silicone polymer comprises at least 2 or more polysiloxane units and at least 2 or more quaternary nitrogen moieties.

32. (New) A fabric treatment composition according to claim 31 wherein the cationic silicone polymer has the formula:

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wherein:

- R^1 is independently selected from the group consisting of C_{1-22} alkyl, C_{2-22} alkenyl, C_{6-22} alkylaryl, aryl, cycloalkyl, and mixtures thereof;
- R^2 is independently selected from the group consisting of divalent organic moieties;
- X is independently selected from the group consisting of ring-opened epoxides;
- R^3 is independently selected from polyether groups having the formula:



wherein M^1 is a divalent hydrocarbon residue; M^2 is independently selected from the group consisting of H, C_{1-22} alkyl, C_{2-22} alkenyl, C_{6-22} alkylaryl, aryl, cycloalkyl, C_{1-22} hydroxyalkyl, polyalkyleneoxide, (poly)alkoxy alkyl and mixtures thereof;

- Z is independently selected from the group consisting of monovalent organic moieties comprising at least one quaternized nitrogen atom;
- a is from about 2 to about 4; b is from 0 to about 100; c is from about 1 to about 1000; d is from 0 to about 100; n is the number of positive charges associated with the cationic silicone polymer, which is greater than or equal to about 2; and A is a monovalent anion.